

## PATENT COOPERATION TREATY

**PCT****INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference  skop-muller	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No.  <b>PCT/KR2004/000896</b>	International filing date (day/month/year)  <b>20 APRIL 2004 (20.04.2004)</b>	Priority date (day/month/year)  21 APRIL 2003 (21.04.2003)	
International Patent Classification (IPC) or national classification and IPC  <b>IPC7 B02C 19/06, B02C 18/44, B29B 17/00</b>			
Applicant  <b>SHIN SUNG IND. CO., LTD. et al</b>			

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>
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Date of submission of the demand  <b>15 JUNE 2004 (15.06.2004)</b>	Date of completion of this report  <b>09 AUGUST 2005 (09.08.2005)</b>
Name and mailing address of the IPEA/KR   Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer  MIN, Byoung Oh  Telephone No. 82-42-481-5977

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2004/000896

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on translations from the original language into the following language \_\_\_\_\_ which is the language of a translation furnished for the purposes of:

- international search (under Rules 12.3 and 23.1(b))
- publication of the international application (under Rule 12.4)
- international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

the international application as originally filed/furnished

the description:  
pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_ as originally filed/furnished  
pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the claims:  
pages \_\_\_\_\_ as originally filed/furnished  
pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_ as amended (together with any statement) under Article 19  
pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the drawings:  
pages \_\_\_\_\_ as originally filed/furnished  
pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3.  The amendments have resulted in the cancellation of:

- the description, pages \_\_\_\_\_
- the claims, Nos. \_\_\_\_\_
- the drawings, sheets \_\_\_\_\_
- the sequence listing (*specify*) : \_\_\_\_\_
- any table(s) related to sequence listing (*specify*) : \_\_\_\_\_

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages \_\_\_\_\_
- the claims, Nos. \_\_\_\_\_
- the drawings, sheets \_\_\_\_\_
- the sequence listing (*specify*): \_\_\_\_\_
- any table(s) related to sequence listing (*specify*) : \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2004/000896

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	1-9	YES
	Claims		NO
Inventive step (IS)	Claims	1-9	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-9	YES
	Claims		NO

**2. Citations and explanations (Rule 70.7)**

1) The present invention relates to a muller, and more particularly to a muller for mixing a material to be processed in highly pressurized air and at a very low temperature, transferring the material mixed in the air, injecting the material using a nozzle at a very high pressure, and colliding the material against a mulling head, thereby finely mulling the material.

2) Reference is made to the following document:

D1 : JP 6154639 A1

D1 relates to a jet mill for improving the pulverizing efficiency of a raw material and the classifying performance after pulverizing the raw material, comprising a pulverizing chamber for pulverizing a raw material; an air feeding port for blowing jet air in the pulverizing chamber; a collision plate provided in the pulverizing chamber against which the raw material fed from a raw material hopper collides by jet air; an exhaust port for discharging the blown-in jet air and the fed raw material; and a chamber for housing dry ice.

3) The present invention is the same as D1 in its purpose of providing a mulling apparatus which crushes a raw material by colliding it against a mulling head by highly pressurized air in order to pulverize the raw material into fine particles.

Claim 1 and D1 are the same in the structure comprising a nozzle unit(an air feeding port in D1) discharging highly pressurized air, a mulling head(a collision plate in D1) which a raw material contained in highly pressurized air collides against, and an input device(a raw material hopper in D1) for providing raw material. However, the present invention is different from D1 in the shape of the mulling unit and the exhaust port having a downwardly tapered open outlet, and the technical feature of inserting a raw material with high-pressurized air through a refrigerant insertion device and a raw material insertion device and then spraying through the nozzle.

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.

PCT/KR2004/000896

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

4) Claims 2-9 disclose the technical feature of providing refrigerant through a refrigerant inlet in order to prevent the abrasion of an apparatus with an influence of frictional heat and to maximize the crushing efficiency by establishing a cold mulling process; and also disclose a pipe line which is installed connecting the upper part of a hopper with a raw material inlet in order to stabilize the inner pressure of the hopper and a pressure of a transfer pipe line in the same level, which are not disclosed in D1, and a person skilled in the art cannot easily invent.

Thus, claims 2-9 are novel and involve an inventive step under PCT Article 33(2)-(3).

5) Claims 1-9 are industrially applicable under PCT Article 33(4).